CLAIMS

1. A method of screening for agents which decrease the activity of human transient receptor channel, comprising the steps of:

i) contacting a test compound with any human transient receptor channel polypeptide encoded by any polynucleotide being selected from the group consisting of:

a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; and

any one of the amino acid sequences shown in SEQ ID NO:12 to 21;

b) a polynucleotide comprising any one of the sequences of SEQ ID NOS:1 to 11;

c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;

d) a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel; and

e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel;

ii) detecting binding of the test compound to the human transient receptor channel polypeptide,

wherein a test compound which binds to the polypeptide is identified as a potential therapeutic agent for decreasing the activity of a human transient receptor channel and for treating urological disorders.

2. A method of screening for agents which regulate the activity of a human transient receptor channel, comprising the steps of:

i) contacting a test compound with a human transient receptor channel polypeptide encoded by any of the polynucleotides polynucleotide being selected from the group consisting of:

a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; and

any one of the amino acid sequences shown in SEQ ID NO:12 to 21;

b) a polynucleotide comprising the sequence of SEQ ID NOS:1 to 11;

c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;

d) a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel; and

e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel; and

ii) detecting a human transient receptor channel activity of the polypeptide,

wherein a test compound which increases the human transient receptor channel activity is identified as a potential therapeutic agent for increasing the activity of the human transient receptor channel and useful to treat urological disorders, and wherein a test compound which decreases the human transient receptor channel activity of the polypeptide is identified as a potential therapeutic agent for decreasing the activity of the human transient receptor channel and useful to treat urological disorders.

3. A method of screening for agents which decrease the activity of a human transient receptor channel, comprising the steps of:

i) contacting a test compound with any polynucleotide polynucleotide being selected from the group consisting of:

a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; andny one of the amino acid sequences shown in SEQ ID NO:12 to 21;

b) a polynucleotide comprising the sequence of SEQ ID NOS:1 to 11;

c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;

d) a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel; and

e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel; and

ii) detecting binding of the test compound to the polynucleotide,

wherein a test compound which binds to the polynucleotide is identified as a potential therapeutic agent for decreasing the activity of the human transient receptor channel and useful to treat urological disorders.

4. A method of reducing the activity of human transient receptor channel, comprising the step of:

contacting a cell with a reagent which specifically binds to any polynucleotide being selected from the group consisting of:

a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; and

any one of the amino acid sequences shown in SEQ ID NO:12 to 21;

b) a polynucleotide comprising the sequence of SEQ ID NOS:1 to 11;

c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;

d) a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel; and

e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel

or a human transient receptor channel polypeptide encoded by the any one of the polynucleotides (a) to (e), whereby the activity of human transient receptor channel is reduced.

5. A reagent that modulates the activity of a human transient receptor channel polypeptide or polynucleotide, wherein said reagent is identified by the method of any of the claims 1 to 4 and useful to treat urological disorders.

6. A pharmaceutical composition for the treatment of urological disorders, comprising:
the reagent of claim 5, and
a pharmaceutically acceptable carrier.

7. Use of the reagent of claim 5 in the preparation of a medicament for modulating the activity of human transient receptor channel in a urological disorder.

8. Use of claim 7, wherein the urological disorder is at least one selected from the group consisting of a disorder caused by overactivity of bladder, hyperflexia, benign prostatic hyperplasia, and one of lower urinary tract syndromes.